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R E P O R T

of the

FIFTH NORTHEASTERN CORN IMPROVEMENT CONFERENCE

Brookhaven National Laboratory, Upton, Long Island  
September 29-30, 1949



Reported by  
G. H. Stringfield, Acting Secretary

Division of Cereal Crops and Diseases  
Bureau of Plant Industry, Soils, and Agricultural Engineering  
146CC-Plant Industry Station, Beltsville, Md.

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REPORT OF THE FIFTH NORTHEASTERN CORN IMPROVEMENT CONFERENCE

Brookhaven National Laboratory, Upton, Long Island  
September 29-30, 1949

Reported by G. H. Stringfield 1/ Acting Secretary

MORNING MEETING, THURSDAY, SEPTEMBER 29

The 1949 meetings of the Northeastern Corn Improvement Conference were held in the Lounge of the Research Staff Building, Brookhaven National Laboratory.

The meeting was called to order by Chairman Ralph Singleton, at 11:00 a. m.

Dr. Singleton reviewed briefly the work of corn breeders. This first session was an open meeting and about 40 members of the Brookhaven National Laboratory staff were in attendance. Dr. Singleton introduced Dr. G. H. Shull, and Dr. D. F. Jones pointing out that hybrid corn breeding work began after Dr. Shull's discovery on Long Island of heterosis in corn.

The chairman introduced Dr. L. J. Stadler who gave a very instructive talk on gene mutation as a phenomenon for studying the nature of the gene.

AFTERNOON MEETING, THURSDAY, SEPTEMBER 29

The meeting was called to order by Chairman Singleton, at 1:30 p.m.

Dr. Singleton introduced Dr. Leslie Nims, Chairman of the Biology Department of the Brookhaven National Laboratory. Dr. Nims welcomed the group and gave an instructive outline of the organization and research at the Laboratory, particularly in the Biology Department.

The chairman gave an outline of what was to be seen on the field trips. The group was then escorted through the biology greenhouses and some of the biology laboratories.

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1/ Senior Agronomist, Division of Cereal Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture, and Associate in Agronomy, Ohio Agricultural Experiment Station, Wooster, Ohio

Dr. H. L. Everett discussed his work with the inheritance of chlorophyll. He has found that at least 3 genes are involved.

Dr. D. F. Jones discussed the male sterility character. Gene controlled male sterility in corn is rather variable with little complete sterility when governed genetically. Cytoplasmic male sterility seems more dependable. Three generations of back crossing accomplishes it. Some inbreds are easily sterilized, others are very difficult to sterilize. Restoring fertility in a double cross hybrid is accomplished in 2 ways: (1) mixing seed produced from a male sterile female in the female parent with normally produced seed, and (2) developing male lines that will restore it.

At 6:30 the group had dinner together in the cafeteria. Following the meal both Dr. Shull and Dr. Jones gave, on request, impromptu reminiscences of their earlier work.

#### EVENING MEETING, THURSDAY, SEPTEMBER 29

The conference reassembled in the Research Staff Lounge at 8:00 p. m.

#### Report of the Committee on Uniform Tests of Field Corn

There were no formal reports. After some discussion J. C. Anderson,

MOVED: That the committees in charge of the various maturity groups arrange for tests of predicted double crosses in 1950 in lieu of the regular all-combination tests of single crosses.

Seconded and passed

#### Report of the Committee on The Registration of Eastland Hybrids

One hybrid, (W22 x Oh51A)(Oh28 x Il1.M14) was suggested by West Virginia for registration. It has a good record of performance in West Virginia and North Carolina uplands. D. F. Jones speaking for the committee, stated that in the Committee's judgement the demonstrated adaptation of this hybrid was not yet wide enough to warrant its acceptance as an Eastland hybrid. R. G. Wiggans then,

MOVED: That the report of the committee be accepted. (That is, that the hybrid would not be given an Eastland designation).

Seconded and passed



Report of the Committee on  
Sweet Corn Investigations

In 1948 members of the sweet corn committee exchanged 11 hybrids and a smaller number of inbred lines for observation. Six states received seed. Data were collected from New York, New Jersey and Maryland. These data are summarized in the accompanying table.

In 1948 members of the committee decided to seek help for sweet corn improvement through the Research and Marketing Act. Accordingly a main project with two sub-projects, one on diseases and the other on quality was drawn up and submitted. To date no favorable action has been reported. It is the opinion of the committee that help for sweet corn improvement should continue to be sought and that a more aggressive policy should be followed in seeking it.

The committee proposes to exchange material for observation in 1950. It is hoped that a more uniform method of note taking may be followed in order that a better job of summarizing may be had.

R. G. Rothgeb

R. S. Snell then,

MOVED: That the report of the committee be accepted.

Seconded and passed.

SUMMARY OF DATA FOR SWEET CORN HYBRIDS GROWN FOR OBSERVATION IN 1948  
BY MEMBERS OF THE NORTHEASTERN CORN IMPROVEMENT CONFERENCE

| Hybrid                | Source of Seed | Days to Harvest 1/ |              | Plant Height In. | No. of Suckers | Relative Yield 2/ |             | Ear Length In. 3/ | Ear Diameter In. 3/ | Placement for Quality 4/ |            |
|-----------------------|----------------|--------------------|--------------|------------------|----------------|-------------------|-------------|-------------------|---------------------|--------------------------|------------|
|                       |                | Geneva N.Y.        | Col.Prk. Md. |                  |                | % of Test Means   | No. of Ears |                   |                     | Flavor                   | Tenderness |
| C3x2410-191           | Mass.Sta.      | 83                 | 59           | 53               | few            | 77                | 39          | 6.2               | 1.5                 | 3                        | 3          |
| Imp. Span Cross C13x3 | Conn.Sta.      | 84                 | 60           | 52               | few            | 59                | 39          | 6.7               | 1.6                 | 4                        | 4          |
| Carmel Cross P39xC13  | Conn.Sta.      | 88                 | 67           | 65               | med.           | 78                | 92          | 8.1               | 1.7                 | 5                        | 2          |
| N. J. 104             | N.J.Sta.       |                    | 69           | 83               | few            | 104               | 135         | 9.3               | 2.0                 | 5                        | 3          |
| N.J. 101              | N.J.Sta.       | 90                 | 68           | 83               | few            | 141               | 146         | 8.5               | 1.8                 | 4                        | 1          |
| Derigo                | Pie.Sta.       | 87                 | 68           | 71               | med.           | 104               | 100         | 8.5               | 1.7                 | 1                        | 1          |
| Hybrid E              | Me.Sta.        | 88                 | 68           | 72               | med.           | 127               | 111         | 8.6               | 1.6                 | 5                        | 3          |
| N. J. 102             | N.J.Sta.       | 88                 | 69           | 78               | f-m            | 104               | 104         | 8.1               | 1.7                 | 3                        | 1          |
| Grant C22xC27         | Conn.Sta.      | 90                 | 69           | 76               | f-m            | 86                | 110         | 9.2               | 2.0                 | 6                        | 2          |
| Hybrid K              | Me.Sta.        |                    | 70           | 77               | med.           | 142               | 121         | 8.5               | 1.7                 | 2                        | 1          |
| 833-7XP51B            | Md. Sta.       | 90                 | 73           | 81               | f-m            | 82                | 107         | 8.8               | 1.8                 | 3                        | 1          |

1 Days from planting to harvest. Planting date at Geneva, June 3; at College Park, June 12.

2 Averages for New Jersey and Maryland tests.

3 Based on 10 best ears of each hybrid. Averages for New Jersey and Maryland tests.

4 Placement numbers based on a composite of scores made for New York, New Jersey and Maryland tests.



Report of the Committee on  
Statistical Designs

The committee had no formal report. At the request of H. M. Yegian there was a discussion of methods of conducting field performance tests.

Following this discussion D. F. Jones brought up the question of testing inbred lines uniformly. It was agreed to postpone action pending results obtained by the Central Corn Conference.

A discussion of the time for the next meeting of the conference followed. R. S. Snell,

MOVED: That the next meeting of the conference be in February 1951.

Seconded and passed

Nominating Committee - D. F. Jones and R. G. Rothgeb

The committee nominated R. G. Wiggans for vice chairman. R. S. Snell then,

MOVED: That the nominations be closed and that the secretary be instructed to ~~cast~~ a unanimous ballot for Dr. Wiggans.

Seconded and passed

The chair was then yielded by Ralph Singleton to J. C. Anderson the incoming chairman. Dr. Anderson entertained a motion to adjourn.

FIELD TRIP, FRIDAY, SEPTEMBER 30

The group was taken by bus to a field where several species of plants, including corn, were growing on concentric circles around a radiating source. The work was described by Dr. Singleton and other members of the research staff.

The Cornell field plantings of corn hybrids at Yaphank were next on the tour. Hybrids from several northeastern and corn belt states were in test and harvested ears were in crates at the ends of the plots. R. G. Wiggans and A. A. Johnson explained the work and called on visiting plant breeders for comments on hybrids from their respective states.

ROSTER OF ATTENDANCE

Connecticut

Everett, H. L., Connecticut Agricultural Experiment Station, New Haven  
Galinat, Walton C., " " " " "  
Jones, D. F., " " " " "

Delaware

Collins, F. Burton, Delaware Agricultural Experiment Station, Newark

Maryland

Rothgeb, R. G., Maryland Agricultural Experiment Station, College Park

Massachusetts

Yegian, H. M., Massachusetts Agricultural Experiment Station, Amherst

Missouri

Stadler, L. J., Division of Cereal Crops and Diseases, U.S.D.A. Columbia

New Jersey

Anderson, J. C., New Jersey Agricultural Experiment Station, Brunswick  
Gangstad, Edward, O., " " " "  
Snell, Robert S., " " " "  
Shull, G. H., Princeton University, Princeton

New York

Dearborn, G. H., New York Agricultural Experiment Station, Geneva  
Grant, U. J., Cornell Agricultural Experiment Station, Ithaca  
Horner, Earl, " " " "  
Jackson, R. I., " " " "  
Johnson, A. A., " " " "  
McClintock, Barbara, Station for Experimental Evolution, Cold Spring Harbor  
Nims, Leslie, Brookhaven National Laboratory, Upton, L. I.  
Singleton, W. R., Brookhaven National Laboratory, Upton, L. I.  
Wiggans, R. G., Cornell Agricultural Experiment Station, Ithaca

Ohio

Stringfield, G. H., Division of Cereal Crops and Diseases, U.S.D.A. Wooster

Virginia

Genter, C. F., Virginia Agricultural Experiment Station, Blacksburg

OFFICERS AND COMMITTEE MEMBERSHIP, 1949

Referee A. J. Heinicke

Executive Committee

|                 |   |                 |
|-----------------|---|-----------------|
| Chairman        | - | J. C. Anderson  |
| Vice Chairman   | - | R. G. Wiggans   |
| Member-at-large | - | W. R. Singleton |
| Secretary       | - | M. T. Jenkins   |

Committee on Uniform Tests of Field Corn

|                       |                |
|-----------------------|----------------|
| L. L. Huber, Chairman | C. M. Haensler |
| B. F. Coon            | R. G. Wiggans  |
| H. L. Everett         |                |

Committee on the Registration of "Eastland" Hybrids

D. F. Jones, Chairman  
L. L. Huber  
R. G. Rothgeb

Committee on Sweet Corn Investigations

|                         |                 |
|-------------------------|-----------------|
| R. G. Rothgeb, Chairman | M. T. Lewis     |
| R. M. Bailey            | W. R. Singleton |
| C. H. Dearborn          | R. S. Snell     |
| W. H. Lachmen           |                 |

Committee on Statistical Designs  
for the Uniform Comparisons

C. E. Phillips, Chairman  
C. I. Bliss  
H. M. Yegian

Committees on Uniform Tests of Hybrids

W240 Maturity

H. M. Yegian, Chairman  
R. M. Bailey

W335, W412 and M15 Maturities

L. L. Huber, Chairman  
R. G. Wiggans  
H. M. Yegian

K24 and Ia. 4059 Maturities

J. L. Cartledge, Chairman  
H. L. Everett

U.S. 13 and Ill. 448 Maturities

J.C. Anderson, Chairman  
R.G. Rothgeb  
H. L. Everett

LIST OF NORTHEASTERN EXPERIMENT STATIONS

|               |               |
|---------------|---------------|
| Connecticut   | New Jersey    |
| Delaware      | New York      |
| Maine         | Pennsylvania  |
| Massachusetts | Rhode Island  |
| Maryland      | Vermont       |
| New Hampshire | West Virginia |